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Review Article

Factors shaping urban greenspace provision: A systematic review of the literature

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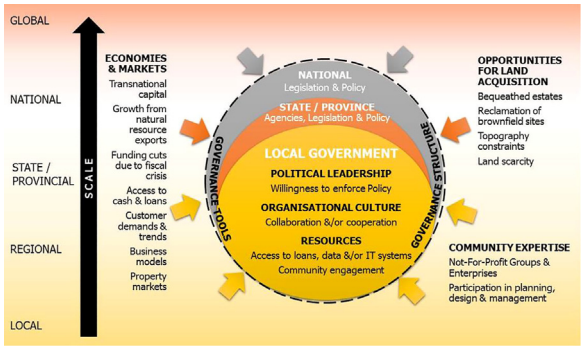
GRAPHICAL ABSTRACT



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ABSTRACT

Over the past two decades, there has been an efflorescence of park and greenspace research. This trend may reflect substantial increases in urban populations globally and concomitant pressures on land resources – including greenspace. But so far research has mainly tended to focus on demand rather than supply, and specifically the practice of provision – notwithstanding the body of literature studying disparities in greenspace access and geographic distribution through an environmental justice lens (e.g. using spatial analysis). Comparatively fewer studies have considered the interplay of factors that may shape local government's capacity to supply greenspace. This paper reports results of a systematic quantitative review of the greenspace *provision* literature: assessing the factors that configure its supply, and different approaches to planning and assessing greenspace provision. A conceptual model is offered, explaining the interaction between greenspace provision factors across different scales. Findings suggest many cities continue to experience gaps between planned and actual greenspace provision. Moreover, urban greenspace is typically planned using a recreational standards approach, despite increasing demands for a range of ecosystem functions, services, and benefits. Future research should engage directly with greenspace managers responsible for urban greenspace delivery, especially in rapidly expanding cities, to illuminate points of convergence and divergence between theory and practice. Policy implications include consideration of holistic greenspace planning approaches that better recognise and respond to emerging demands upon, and for, urban greenspace.

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Table 1
Chronology of key milestones contributing to current greenspace standards for recreation.

Year	Description	Location	Source
1883	Metropolitan Public Gardens Association's Earl of Meath proposed "Public space for recreation should be within a **quarter mile** of everyone's door". ***(Equivalent to 402 m radius)***	UK	Holmes, 1911 and Theobold, 1984, p.194 in Wilkinson, 1985, p.192.
1885	American Playground Movement established	USA	Gold, 1973, p.21
1893	**30^{2}ft/child** of the school for playground ***(Equivalent to 2.8 m^2/child)***	London, UK	National Recreation & Parks Association, 1967, p.2 and Theobold, 1984, p.194 in Wilkinson, 1985, p.191
1906	Playground Association of America (PAA)[a] held first meeting and adopted (from London) **30ft^2/child** for playgrounds (children in schools) ***(Equivalent to 2.8 m^2/child)***	USA	Olmstead, 1906 in Wilkinson, 1985, p.191; Dickason, 1981, p.84
1910	Recreation Movement (America) concluded that adequate play facilities must be within walking distance of children	USA	Curtis, 1910, p.125 in Wilkinson, 1985, p.191
	Development of facility concepts, service radii and approximate sizes of neighbourhood facilities	USA	National Recreation & Parks Association, 1967, p.5 in Wilkinson, 1985, p.191
	NRA[a] accepted and promoted standard of **10 acres/1000** population for recreation ***(Equivalent to 4Ha or 40,469 m^2/1000 population)***		
1923	Neighbourhood Playground concept formalised with a "Set of standards for play space needed around elementary and secondary schools" recommended by Committee on Recreation Problems in City Planning recommend to Recreation Congress 1923.	USA	Wilkinson, 1985, p.192
1925	National Playing Fields Association (Britain) (NPFA) established	UK	Wilkinson, 1985, p.193
1928	Playground and Recreation Association (America) (PRA[a]) adopted **200 ft^2/child** ***(Equivalent to 18.6 m^2/child)***	USA	Butler, 1928 in Wilkinson, 1985, p.192
	Playground and Recreation Association (America) (PRA[a]) then adopted • **25 ft^2/child** aged 5–15 years, and • living within a radius of ¼ **mile** ***(Equivalent to 2.3 m^2/child and 402 m radius)***	USA	Hamner et. Al., 1928 pp.118–21 in Wilkinson, 1985, p.192
1934	National Recreation Association (America) (NRA)[a] issued standards of **1 acre** of neighbourhood playground/**1000** of neighbourhood population ***(Equivalent to 4047 m^2 or 0.4 Ha/1000 population)***	USA	Butler, 1936, pp.9–19 in Wilkinson, 1985, p.192
1948	National Recreation Association (America) (NRA)[a] modified standard to **1 acre** of neighbourhood playground/**800** of neighbourhood population ***(Equivalent to 4047 m^2 or 0.4 Ha/800 population)***	USA	Wilkinson, 1985, p.193
1955	National Playing Fields Association (Britain) (NPFA) adopted **6 acres** permanent playing space/**1000** population excluding school playing fields, woodlands, commons, ornamental gardens, full-length golf courses ***(Equivalent to 24,281 m^2 or 2.4Ha/1000 population)*** plus 1 acre/1000 population of ornamental public open space ***(Equivalent to 4047 m^2 or 0.4 Ha /1000)***	UK	Gooch, 1964, p.480 in Wilkinson, 1985, p.193

[a] Playground Association of America (PAA) founded in 1906, became Playground and Recreation Association (America) (PRA) in 1911, was renamed the National Recreation Association (NRA) in 1926, then merged with four other organisations to become National Recreation and Parks Association (NRPA) in 1965 (Dickason, 1981, p.84).

1. Introduction

How much greenspace does a city need? This surprisingly vexatious question, often posed by politicians, residents, professional planners and other local government greenspace stakeholders, is not simply answered. Globally, many cities have experienced rapid population growth over the past two decades, and that trend is set to continue. Burgeoning populations can create pressure on greenspace in two ways: (i) from the loss of undeveloped land as it is converted to housing, commercial, warehousing and other land uses (Haaland & Van den Bosch, 2015; Tomalty, 2012; Zerah, 2007; Zhou & Wang, 2011); and (ii) from increasing congestion within existing greenspaces, as residents seek out extant parks, playing fields and other spaces for traditional purposes of recreation, leisure, mental restoration and solitude (Barton & Pretty, 2010; Dahmann, Wolch, Jossart-Marcelli, Reynolds, & Jerrett, 2010; Daniel et al., 2012; Pretty, Peacock, Sellens, & Griffin, 2005). The growing demand for parks to deliver "natural" services can threaten the capacity of these spaces to provide traditional services (Burgess, Harrison, & Limb, 1988). Local governments (and to some extent provincial/state governments) are experiencing a widening gap between planned greenspace requirements and actual greenspace provision (Hashem, 2015; Maruani & Amit-Cohen, 2007; Stubbs, 2008). The challenge for greenspace planners and managers is seemingly unrelenting, as many cities struggle to ensure that adequate areas of greenspace are provided and maintained.

While commentators have recently observed a proliferating urban greenspace literature, interest in the subject is not new, especially when it raises concerns about greenspace provision. Over the past fifty years, Jane Jacobs (1961), Seymour Gold (1973), Paul Wilkinson (1985) and other scholar-activists have alerted us to the importance of understanding greenspace supply and demand, relative to population needs. Calling for more attention to be given to parks, gardens, playing fields and other greenspaces, they also cautioned about the financial and social risks of oversupplying parks and playgrounds that are "too large, too frequent, too perfunctory, too ill-located, and hence too dull or too inconvenient to be used" (Jacobs, 1961, p. 110). A poor understanding of the relationship between greenspace supply and demand can partly be attributed to the rapid growth of greenspace in the late 19th and early 20th centuries (especially parks). As Harnik (2010, p. 13) has explained, up until the 1920s, "parks were such a wondrous new phenomenon, that they were so rare, that the goal was to get as many as possible." By the mid-1970s though, the 'more is better' approach to local government greenspace acquisition was creating problems for residents, local government managers, urban planners and land developers alike. Indeed, Gold (1973 in Talen, 2010, p. 475) observed that: "the non-use of neighbourhood parks emerged as a significant problem, strongly suggesting that in some cases, 'less may be more'".

So how can we tell when supply of urban greenspace is sufficient and appropriate? Is it just about the amount of space (e.g. area or ratio per capita), or are other considerations important too? Findings from the political ecology, political economy (growth machine), service provision (governance) and environmental justice literatures suggest that greenspace provision should be equitable (distance to residents, quality of spaces, facilities and services); should be designed to meet the